Service Manual

NATIONAL
TAPE RECORDER
PANASONIC

FM/AM RADIO CASSETTE RECORDER WITH AUTO-REWIND AND MICROPHONE MIXING FEATURE

RQ-444S MECHANISM SERIES

MODEL RQ-444S

SPECIFICATIONS

Power Source:	AC: 90~109, 110~125, 200~219, 220~250 volts, 50/60 Hz DC: 6 volts, four "D" batteries DC: 12 volts (automobile battery, using National car adaptor RP-916)
Power Consumption:	6 W
Motor:	DC mechanical governor motor
Transistors:	2SA666(8) 2SB175(5) 2SB324(3) 2SC1047(2) 2SC1359(5)
Diodes & Rectifier:	OA90(8) MA26(1) MA25(1) FR2(2) SC15(1) MA26W(1) 2OA90(2)
Maximum Output:	2 W
Track System:	2-track monaural
Tape Speed:	1-7/8 ips. (4.8 cm/sec)
Recording Bias System:	AC bias
Erasing System:	AC erase
Monitor System:	Sound monitor
Frequency Response:	50~10,000 Hz
Inputs:	MIC −70 dB (0.3 mV)/3.7 KΩ AUX IN −20 dB 140 KΩ
Output:	EXT SP 8Ω
Recording Time:	One hour (two-way, using C-60 tape)
Speaker:	5″ round, permanent dynamic type
Battery Life:	Approx. 10 hours (National "Hi-Top" size "D" batteries)
Dimensions:	11-3/4″(W)×6-7/8″(H)×3-1/4″(D)
Weight:	Approx. 5 lbs.
RADIO SECTION	
Frequency Range:	FM: 87.5~108 MHz AM: 525~1,605 kHz
Sensitivity:	FM: 1μV/50 mW AM: 30μV/m/50 mW

These specifications are subject to change in order to accommodate improvements in design.

MATSUSHITA ELECTRIC
MATSUSHITA ELECTRIC TRADING CO., LTD.
P. O. Box 288 Central, Osaka, Japan

ORDER NO. ARD-7211241

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LOCATION OF PARTS

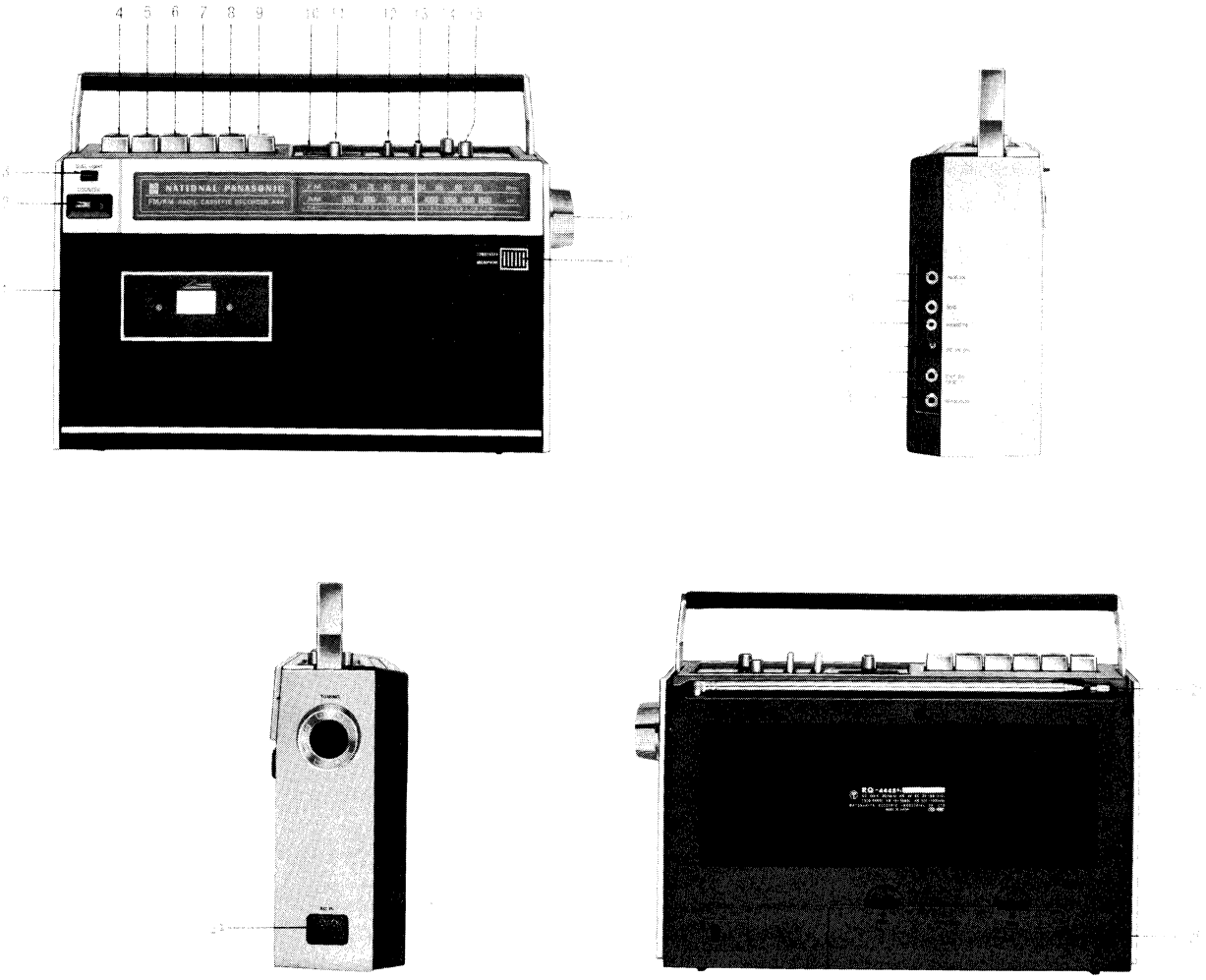


Fig. 1

① Cassette cover
② Tape counter
③ Dial light button
④ Ejection button
⑤ Stop button
⑥ Playback button
⑦ Fast forward button
⑧ Rewind button
⑨ Record button
⑩ Combination level meter and tuning meter
⑪ Microphone volume
⑫ Tape/radio selector
⑬ Band selector
⑭ Volume control
⑮ Tone control
⑯ Tunig control
⑰ Built-in microphone
⑱ Auxiliary input jack
⑲ Microphone jack
⑳ Remote jack
㉑ DC input jack
㉒ External speaker jack
㉓ Multiplex output jack
㉔ AC socket
㉕ Rod antenna
㉖ Battery compartment

DISASSEMBLY INSTRUCTIONS

HOW TO REMOVE BOTTOM CASE

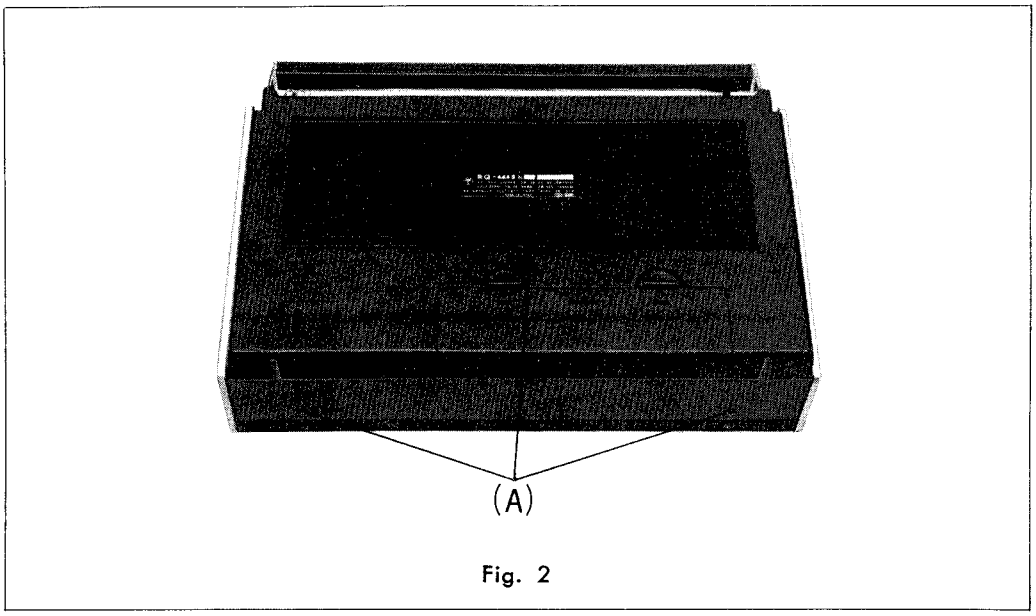


Fig. 2

1. Remove 3 bottom case holding screws (A).
2. Then bottom case can be removed.

HOW TO REMOVE CHASSIS

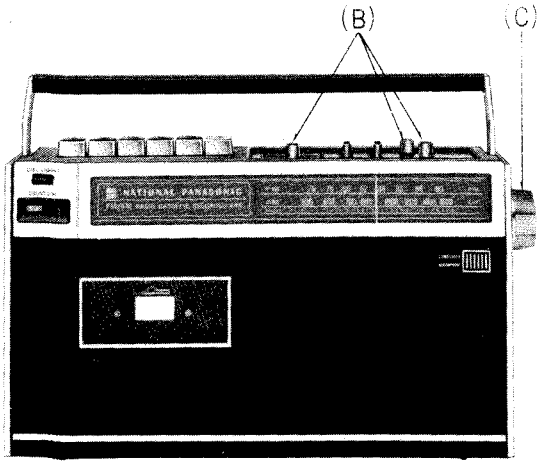


Fig. 3

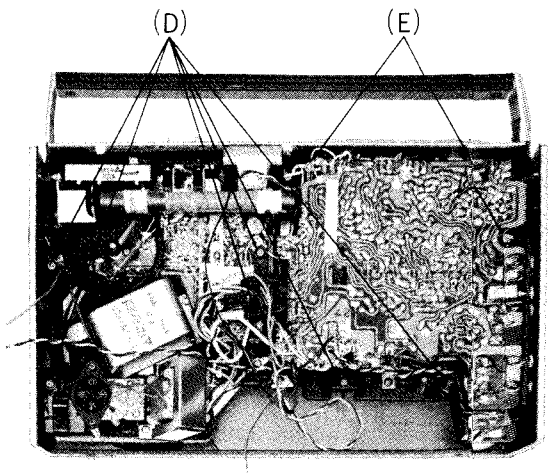


Fig. 4

1. Remove 3 control knobs (B) and 1 tuning knob (C).
2. Remove 6 chassis holding screws (D) and 2 chassis holding poles (E).
3. Then chassis can be removed.

STANDARD VALUE TO TEST

ITEM	VALUE	PARTS TO BE ADJUSTED	REMARK
Recording bias current.	0.45±0.03 mA	VR5	Set the volume control to minimum.
Input level	MIC −70± 5dB AUX −20±5 dB	——	To obtain 45± 10μA of recording current through the recording head. Set the microphone volume control to maximum. Stop the bias oscillation by making terminal ④ and ⑥ of L2 short.
Bias oscillation frequency.	35±5 kHz	——	——
Erase current.	60 mA	——	——
Takeup tension.	55±15 gr-cm	——	——
Pressure of pressure roller.	320±50 gr	Pressure roller lever spring.	——

ALIGNMENT INSTRUCTIONS OF RADIO

THREADING DIAL CORD

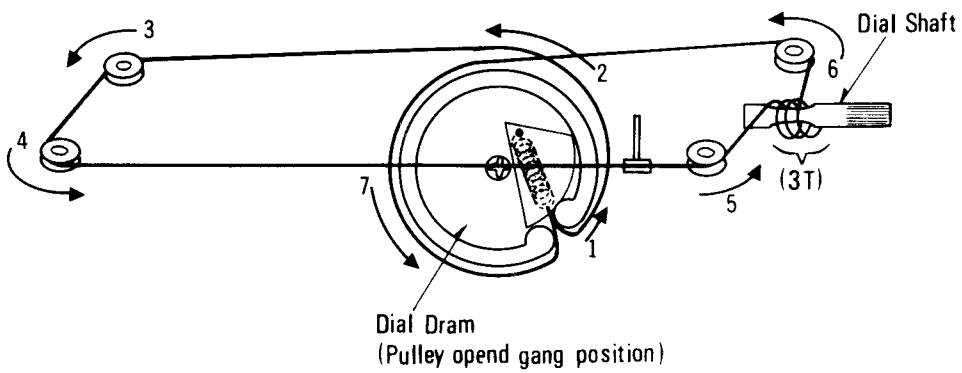


Fig. 5

AM IF & RF ALIGNMENT

Output of signal generator should be no higher than necessary to obtain an output reading.
Set volume control to maximum.
Set tone control to treble.
Set tape/radio select switch to radio.
Set band select switch to AM.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUSTMENT	REMARKS
1	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz (400 Hz Mod.)	Point of non-interference. (on/about 600 kHz)	Output meter across EXT SP jack.	T102 (1st IFT) T103 (2nd IFT) T105 (3rd IFT) T107 (4th IFT)	Adjust for maximum output.
2	Fashion loop of several turns of wire and radiate signal into loop of receiver.	550 kHz (400 Hz Mod.)	550 kHz	Output meter across EXT SP jack.	L107 (OSC coil) L106 (ANT coil)	Adjust for maximum output by sliding coil (L106) along ferrite core.
3	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1500 kHz (400 Hz Mod.)	1500 kHz	Output meter across EXT SP jack.	C125 (OSC trimmer) C121 (ANT trimmer)	Adjust for maximum output. Repeat steps (2) and (3).

Note : 1. Cement antenna bobbin with wax after completing alignment.
2. Make certain that speaker system or dummy resistor (8Ω) is connected to the EXT SP jack when aligning.

FM IF & DETECTOR ALIGNMENT WITH OSCILLOSCOPE

EQUIPMENT REQUIRED

Signal generator that provides 10.7 MHz marker.
Sweep generator that provides 10.7 MHz center frequency and 400 kHz sweep width.

OSCILLOSCOPE

Set sweep selector of oscilloscope to "EXTERNAL SWEEP" Apply 60 Hz sweep signal from sweep generator to horizontal input terminals of oscilloscope.

Set tape/radio select switch to radio.
Set band select switch to FM.
Set volume control to minimum.
Set tone control to treble.

Note: Unsolder lead between test point TP3 and Point Ⓐ before alignment and resolder it after alignment.

	SWEEP GENERATOR COUPLING	SIGNAL GENERATOR COUPLING	RADIO DIAL SETTING	INDICATOR	ADJUSTMENT	REMARKS
1	High side thru. 0.001μF to point TP2. Common to chassis.	High side thru. 0.001μF to point TP2. Common to chassis.	Point of non-interference (on/about 90 MHz).	Connect vert. amp. of scope to point TP3. Common to chassis.	T100 (FM 1st IFT) T101 (FM 2nd IFT) T104 (FM 3rd IFT) T106 (FM 4th IFT) T108 (FM 5th IFT)	Adjust for maximum amplitude and proper linearity between ±100 kHz markers. (Refer to fig. 6)
2	High side thru. 0.001μF to point TP2. Common to chassis.	High side thru. 0.001μF to point TP2. Common to chassis.	Point of non-interference (on/about 90 MHz).	Connect vert. amp. of scope to point TP4. Common to chassis.	T109 (FM 6th IFT)	Adjust T109 so that 10.7 MHz marker is at the center. (Refer to fig. 7)

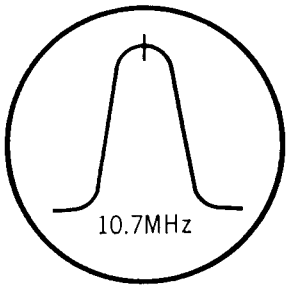


Fig. 6

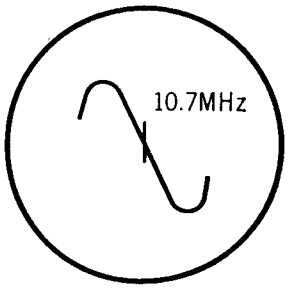


Fig. 7

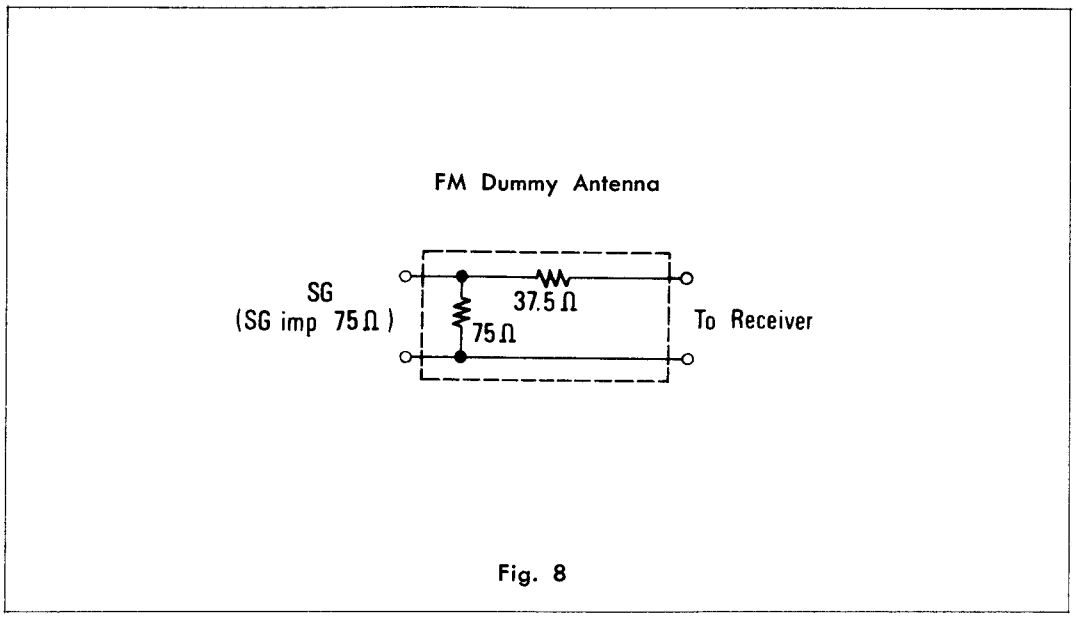


Fig. 8

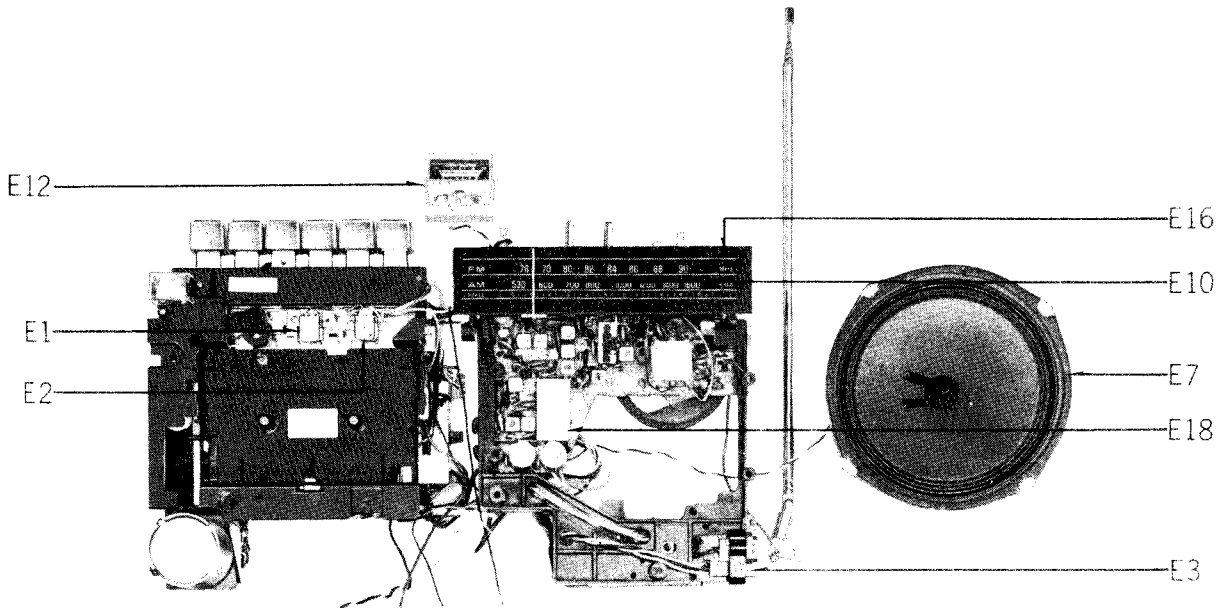
FM RF ALIGNMENT

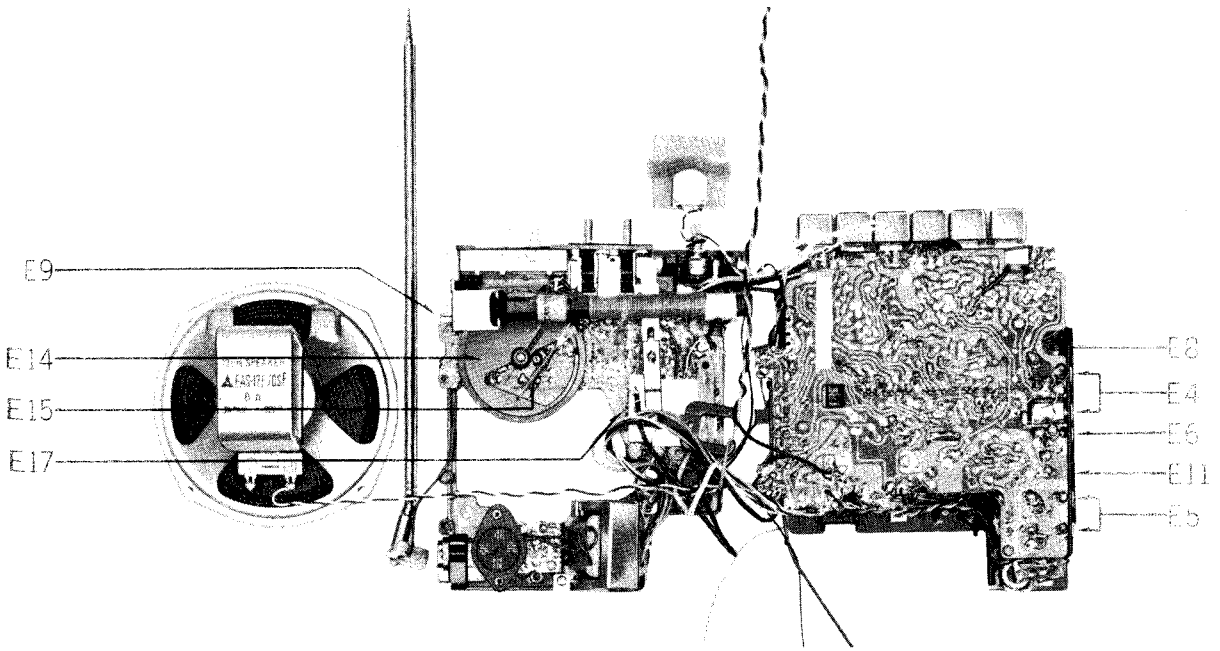
Output of signal generator should be no higher than necessary to obtain an output reading.
Set volume control to maximum.
Set tone control to treble.
Set tape/radio select switch to radio.
Set band selector switch to FM.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUSTMENT	REMARKS
3	Connect to EXT FM antenna terminal through FM dummy antenna. Common to chassis. (Refer to fig. 8)	90 MHz (400 Hz Mod.)	90 MHz	Output meter across EXT SP jack.	L105 (FM OSC coil) L103 (FM collector coil)	Adjust for maximum output.
4	Connect to EXT FM antenna terminal through FM dummy antenna. Common to chassis. (Refer to fig. 8)	106 MHz (400 Hz Mod.)	106 MHz	Output meter across EXT SP jack.	C117 (FM OSC trimmer) C107 (FM collector trimmer)	Adjust for maximum output. Repeat steps (3) and (4).

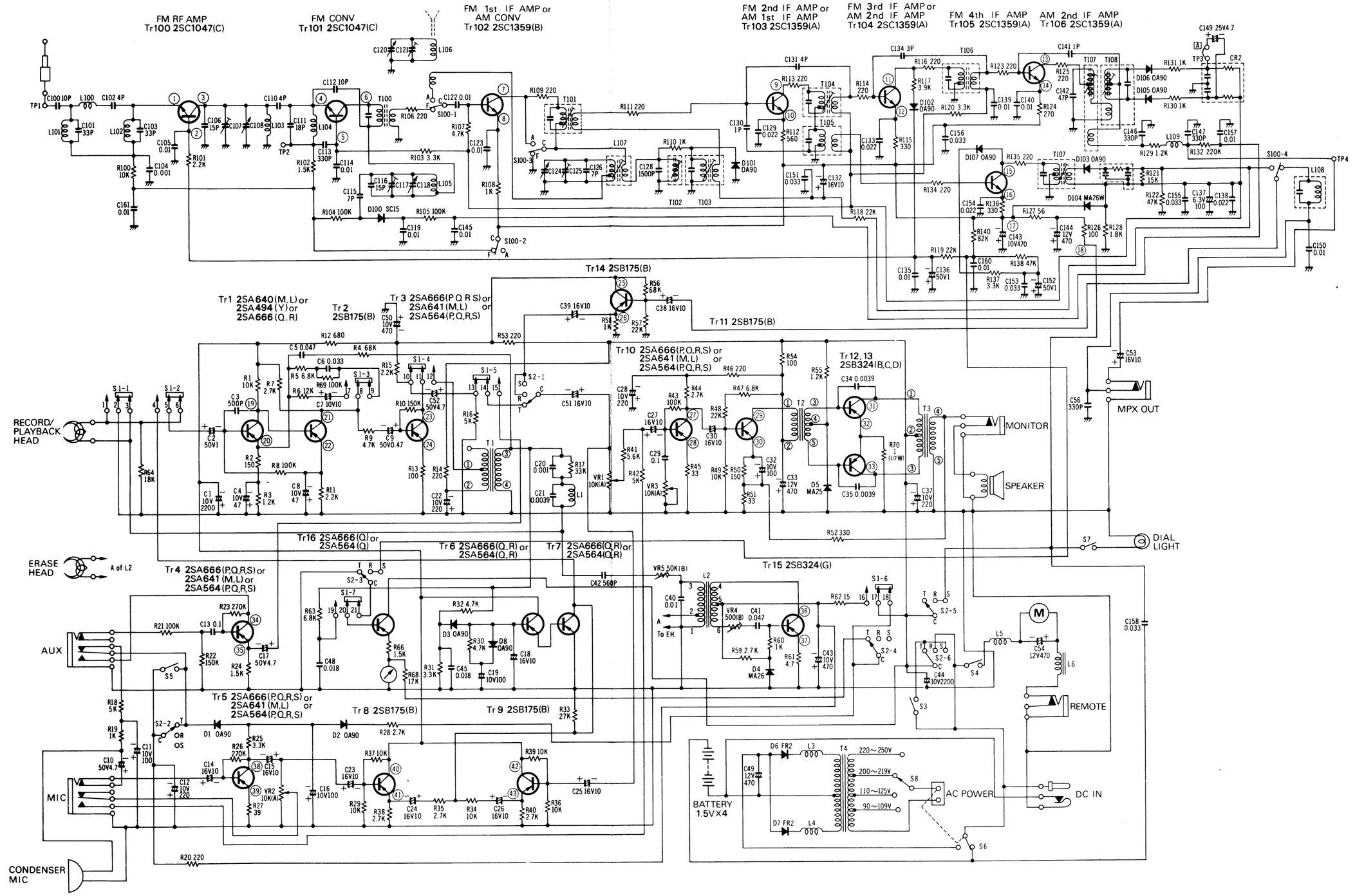
Note: Three output responses will be present, proper tuning is the center frequency.

ELECTRICAL PARTS LOCATION





SCHEMATIC DIAGRAM MODEL RQ-444S



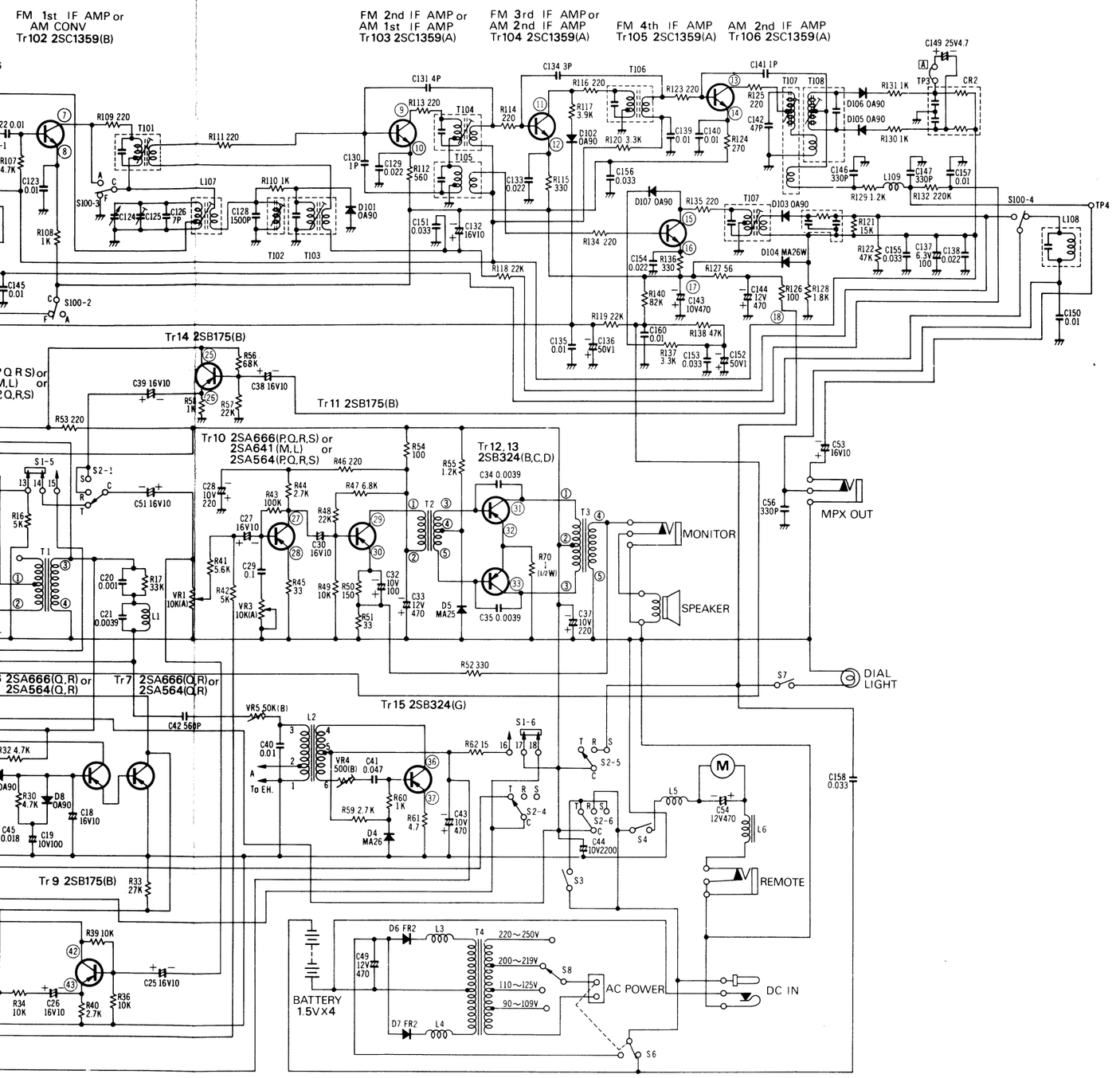
Check Point	Recording
①	
②	
③	
④	
⑤	
⑥	
⑦	
⑧	
⑨	
⑩	
⑪	
⑫	
⑬	
⑭	
⑮	
⑯	
⑰	
⑱	
⑲	−0.90
⑳	−0.39
㉑	−2.75
㉒	−0.76

NOTE: All measur
Use VTVM

NOTE:

1. S1-1~S
2. S2-1~S
3. S3 .....
4. S4 .....
5. S5 .....
6. S6 .....
7. S7 .....
8. S8 .....
9. S100-1
10. VR1 ....
11. VR2 ....
12. VR3 ....
13. VR4 ....
14. VR5 ....
15. Resistors K=1,00
16. Capacito P=Pico-
17. Encircled The valu

EL RQ-444S



STANDARD VOLTAGE CHART

Check Point	Recording	Playback	FM	AM	Check Point	Recording	Playback	FM	AM
①			−1.17V		㉓	−4.10V	−1.65V		
②			−0.45V		㉔	−0.55V	−0.15V		
③			−0V		㉕	−5.20V	−5.0V		
④			−4.1V		㉖	−1.05V	−1.0V		
⑤			−3.4V		㉗	−1.26V	−1.25V		
⑥			−0V		㉘	−0.046V	−0.045V		
⑦			−0.15V		㉙	−5.10V	−5.10V		
⑧			−4.1V	−4.1V	㉚	−0.89V	−0.90V		
⑨			−0.16V	−0.16V	㉛	−6.0V	−6.0V		
⑩			−4.2V	−4.3V	㉜	−0.01V	−0.01V		
⑪			−0.32V		㉝	−6.0V	−6.0V		
⑫			−4.1V		㉞	−5.10V			
⑬			−0.4V		㉟	−1.52V			
⑭			−4.2V		㊱	−5.52V			
⑮				−0.33V	㊲	−0.12V			
⑯				−4.2V	㊳	−1.75V	−1.51V		
⑰			−4.6V	−4.75V	㊴	−0.036V	−0.027V		
⑱			−9mA	−8mA	㊵	−3.75V	−3.50V		
⑲	−0.90V	−0.90V			㊶	−1.72V	−1.6V		
⑳	−0.39V	−0.39V			㊷	−3.75V	−3.50V		
㉑	−2.75V	−2.50V			㊸	−1.72V	−1.6V		
㉒	−0.76V	−0.77V							

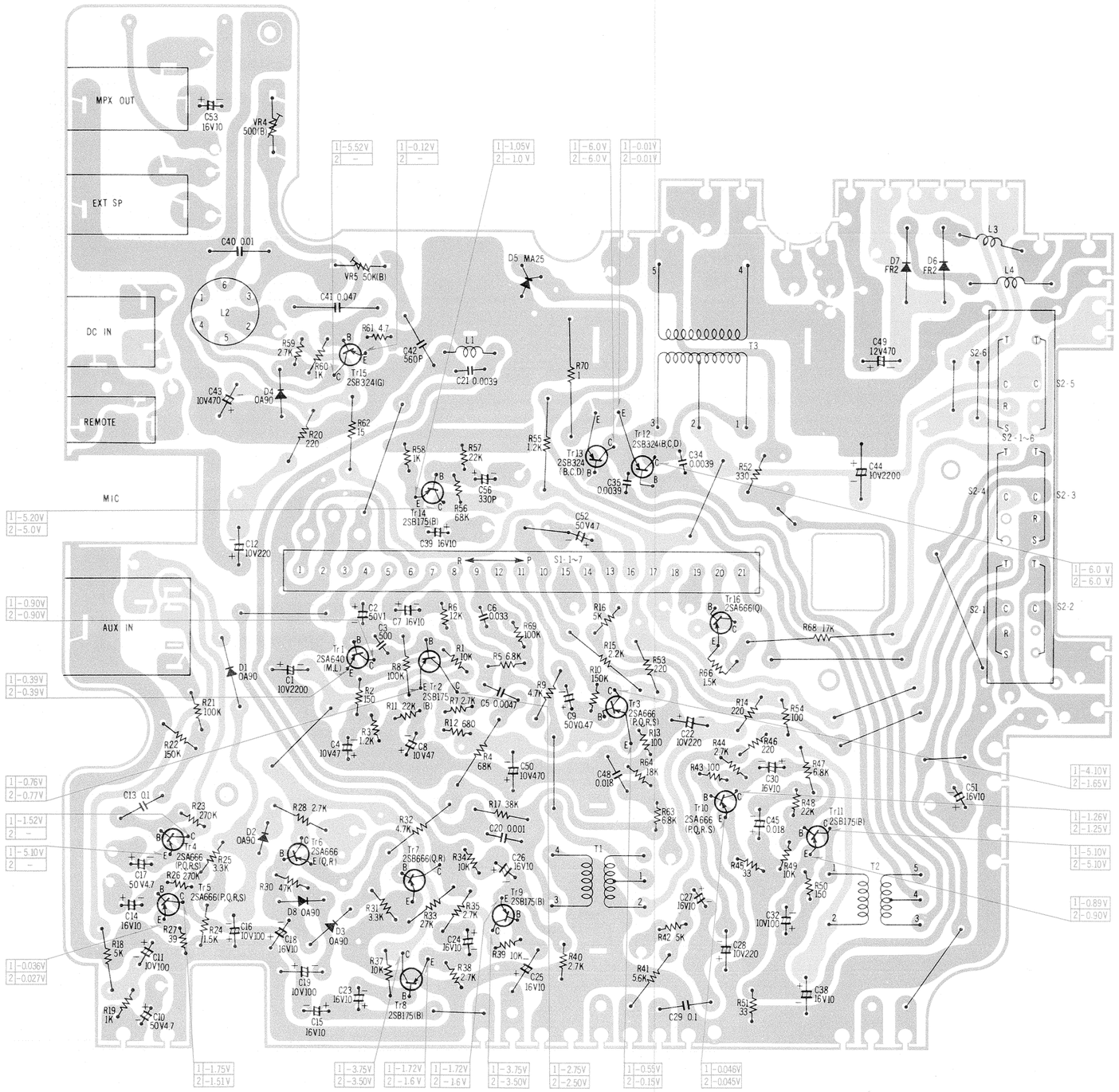
NOTE: All measurements are under no signal condition with volume at minimum position. Use VTVM for voltage measurements.

NOTE:

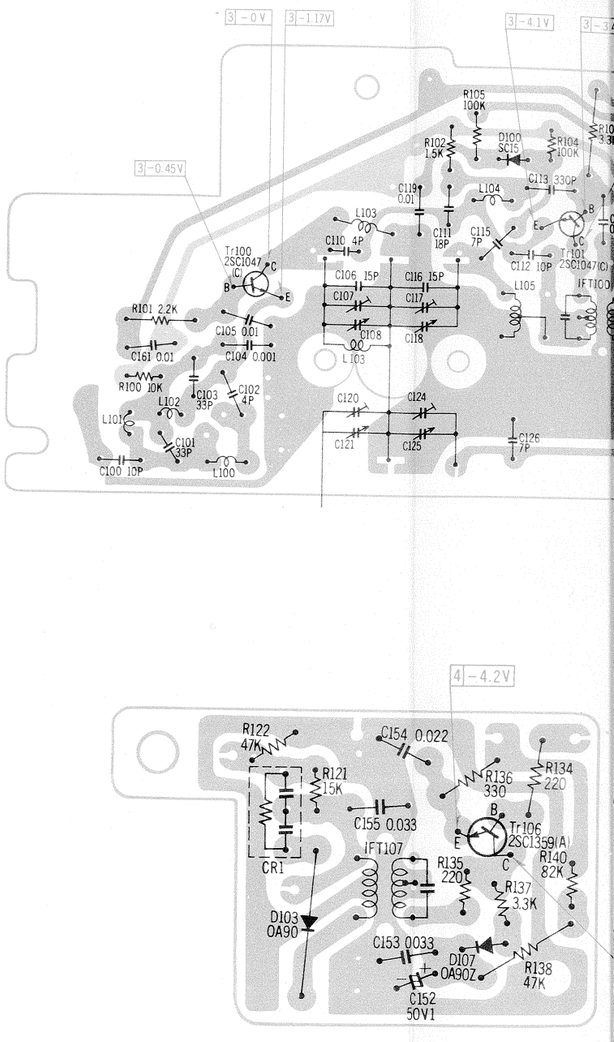
1. S1-1～S1-7..... Record/playback select switch (shown in playback position).
2. S2-1～S2-6..... Function switch (shown in tape position). T...TAPE, R...RADIO, S...SLEEP.
3. S3 ..... Amplifier ON/OFF switch.
4. S4 ..... Motor ON/OFF switch.
5. S5 ..... Mixing switch.
6. S6 ..... AC/DC select switch.
7. S7 ..... Dial light switch.
8. S8 ..... AC voltage select switch.
9. S100-1～S100-4 ..... FM/AM select switch.
10. VR1 ..... Volume control.
11. VR2 ..... MIC level control.
12. VR3 ..... Tone control.
13. VR4 ..... Erase current adjust VR.
14. VR5 ..... Bias current adjust VR.
15. Resistors are ohms (Ω), 1/4 watt unless specified otherwise. K=1,000Ω.
16. Capacitors are microfarad (μF) unless specified otherwise. P=Pico-farads.
17. Encircled number (㊀) show the checkpoints for voltage. The values are marked in the standard voltage chart.

CIRCUIT BOARD

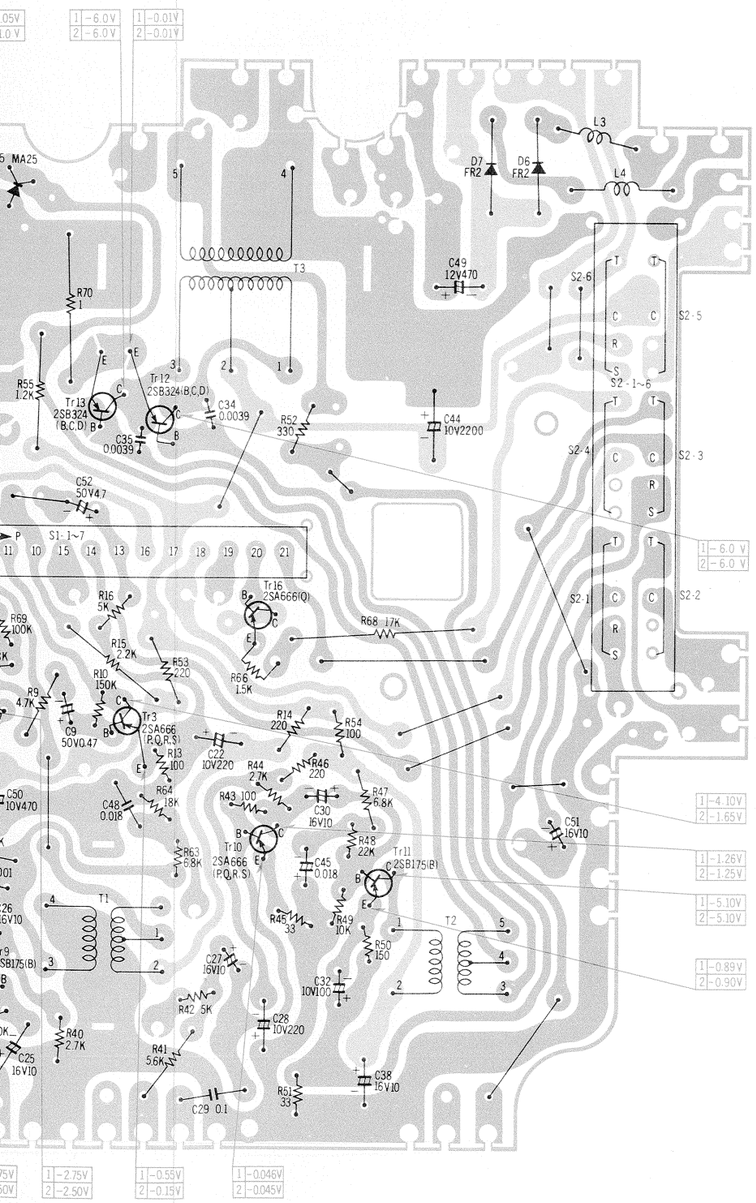
MAIN CIRCUIT BOARD

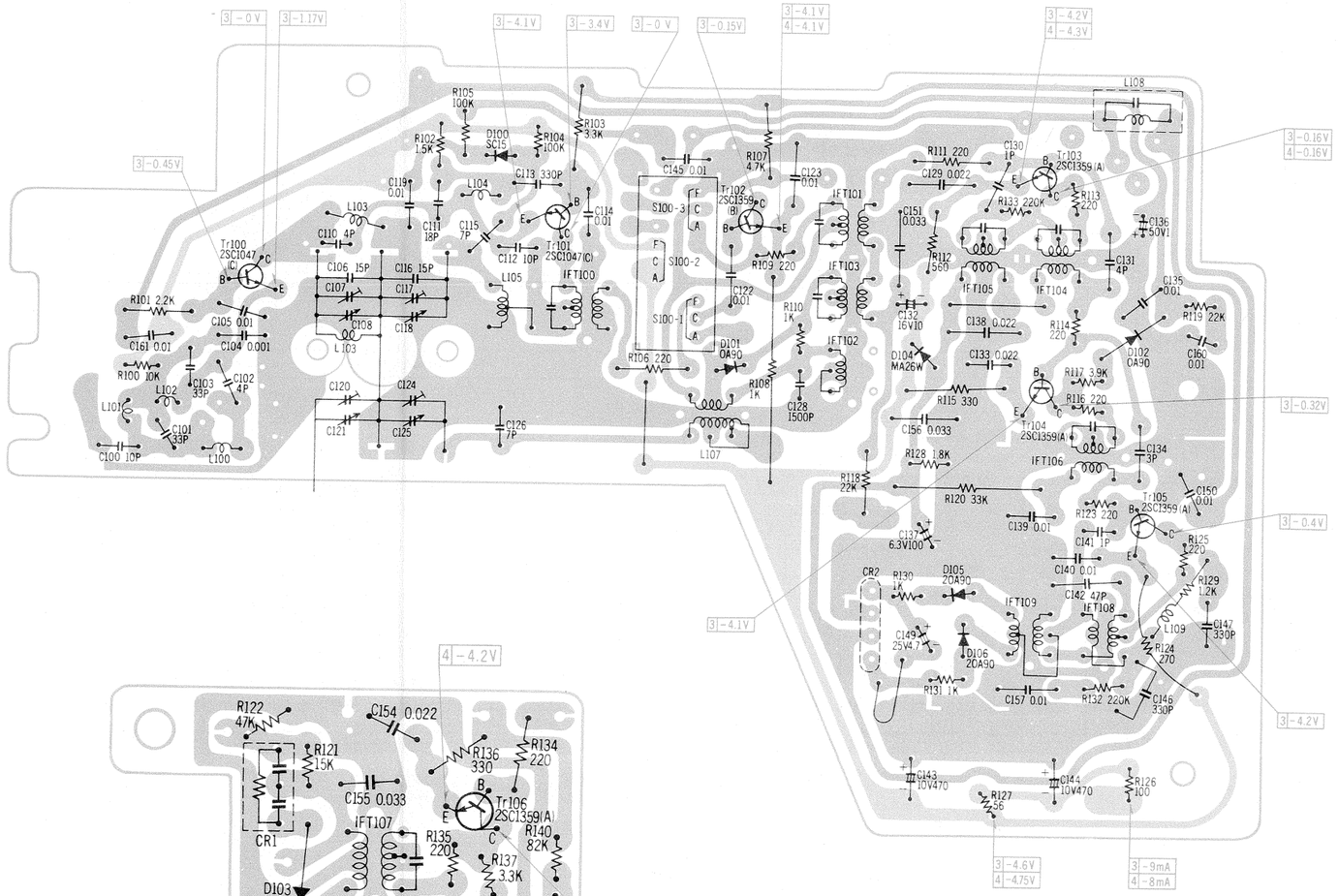


RADIO CIRCUIT BOARD



RADIO CIRCUIT BOARD

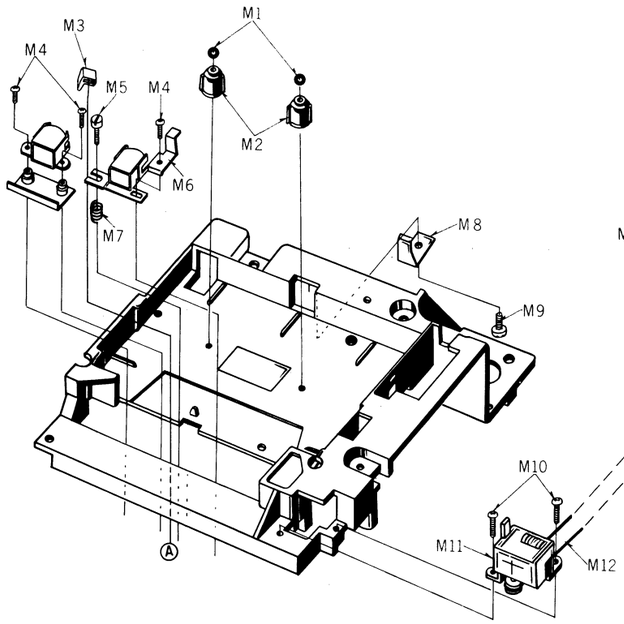


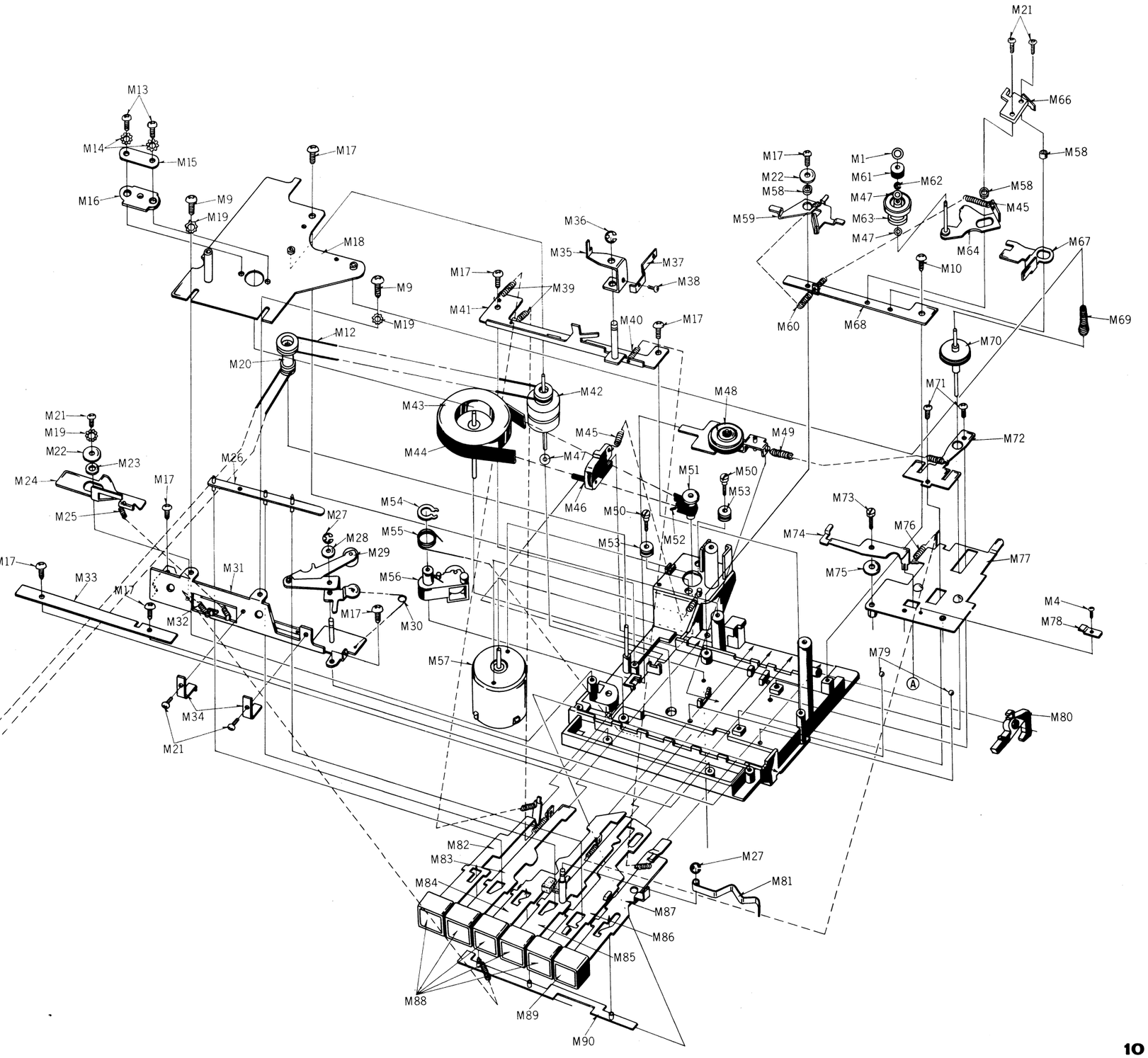


NOTE:

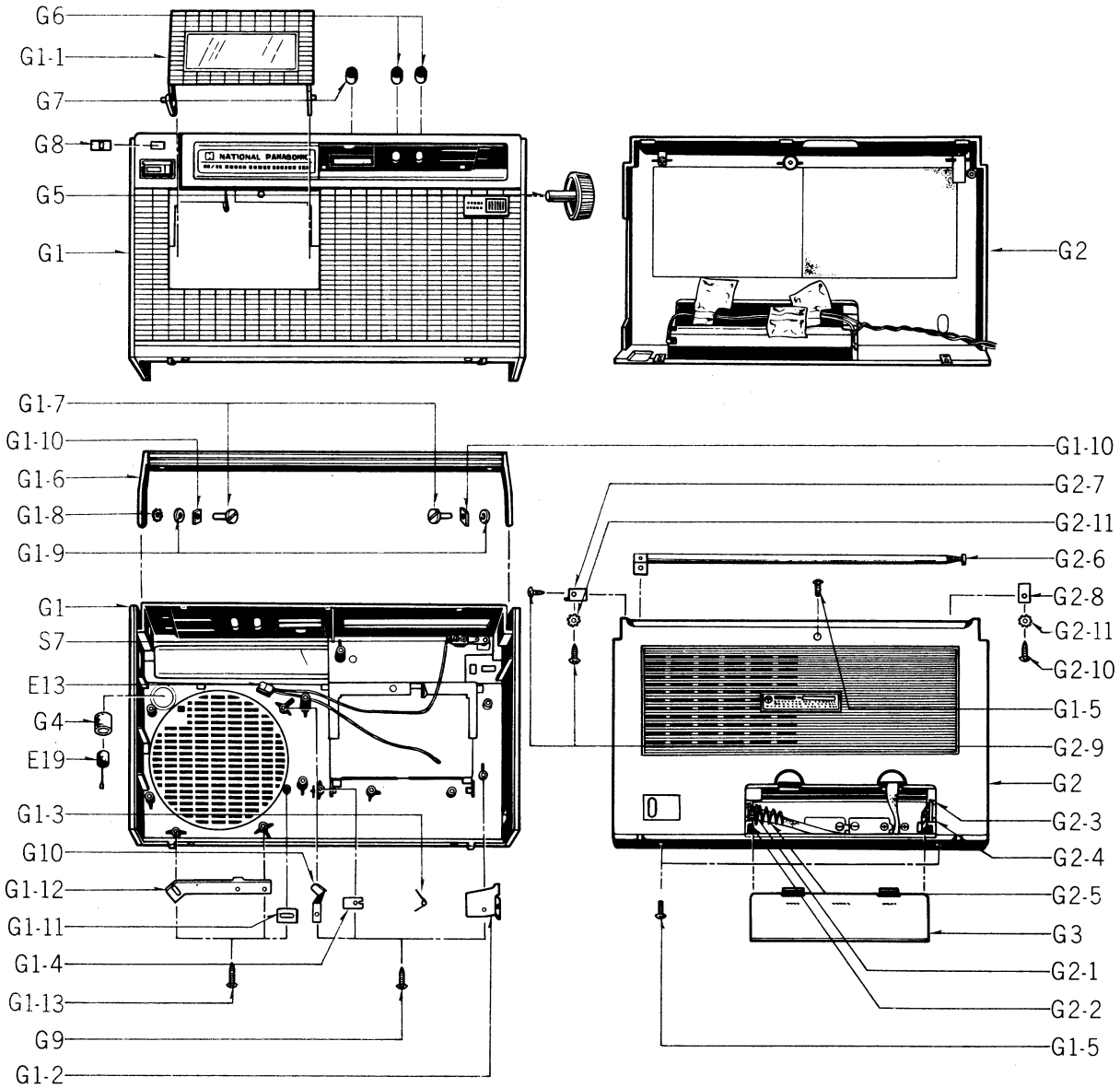
The circuit shown in red on the conductor is −B circuit.
Values indicated in ▭ are DC voltages between the chassis and electrical parts.
Numerals show values of voltage at.....
1...Recording, 2...Playback, 3...FM and 4...AM, respectively.

EXPLODED VIEWS





CABINET PARTS



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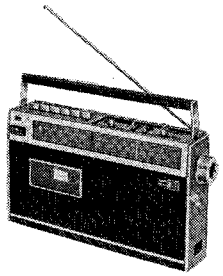
REPLACEMENT PARTS LIST

MODEL RQ-444S

NATIONAL PANASONIC



RQ-444S

NOTE:

1. Be sure to make your orders of Replacement Parts according to this List.
2. "×" in "Rank" Column indicates that the part are not supplyable.
3. "**A**, **B** and **C**" in "Rank" Column indicates the recommended stock of replacement parts. Refer to the recommended stock table on last page.
4. "★" in "Remarks" Column indicates New Parts.
5. "ISO" in "Remarks" Column indicates ISO Screw or Nut.
6. "K" in indicates the serrated parts with 18 notches.

NOTA:

1. Habrá que asegurarse que los pedidos de piezas de repuesto se hagan según esta lista.
2. "×" marcado en la columna "Rank", quiere decir que dichas piezas no pueden ser provistas.
3. "**A**, **B** y **C**" marcadas en la columna "Rank" indican el surtido que se recomienda tener de dichas piezas de repuesto.
4. "★" marcado en la columna "Remarks", quiere decir que las piezas son nuevas.
5. "ISO" marcado en la columna "Remarks", quiere decir que es un tornillo o tuerca "ISO".
6. "K" indica las partes dentadas con 18 ranuras.

NOTE:

1. Bien s'assutet de se conformer à la liste suivante pour les commandes de pièces de rechange.
2. "×", dans la colonne "Rank", indique qu'il n'est pas possible de fournir ces pièces.
3. "**A**, **B** et **C**", dans la colonne "Rank", indiquent le stock recommandé de pièces de rechange. Se reporter en dernière page au tableau des stocks/recommandés.
4. "★", dans la colonne "Remarks", indique les pièces nouvelles.
5. "ISO", dans la colonne "Remarks", indique une vis ou un écrou ISO.
6. "K" indique les pièces cannelées à 18 crans.

HINWEIS:

1. Bestellen Sie Ihre Ersatzteile genau nach dieser Liste.
2. Mit "×" in der "Rank" Spalte aufgeführte Teile können nicht geliefert werden.
3. "**A**, **B** und **C**" in der "Rank" Spalte zeigt Ihnen den Vorrat der Ersatzteile an.
4. "★" in der "Remarks" Spalte bedeutet "neue Teile".
5. "ISO" in der "Remarks" Spalte bedeutet ISO-Schraube oder Mutter.
6. "K" bezeichnet die gezähnten Teile mit 18 Zähnen.

按:

1. 關於代用零件之訂購，務請依照此表而行之爲荷。
2. 「等級」(Rank) 一欄中之 "×" 標記表示該零件無從供應。
3. 「等級」(Rank) 一欄中之 "**A**, **B**, **C**" 標記表示該零件有存貨，值得介紹。
   請參照最後一頁的「值得介紹存貨表」。
4. 「備考」(Remarks) 一欄中之 "★" 形符號標記表示該零件爲新出品。
5. 「備考」(Remarks) 一欄中之 "ISO" 符號標記表示國際標準化機構 (ISO) 式螺絲或螺母。
6. "K" 形符號標記表示備有 18 個凹槽的鋸齒狀零件。

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)	Remarks
		MECHANICAL PARTS				
C	M1	Snap Washer	QBJT3006	3		RQ-228S
A	M2	Reel Table Assembly	QXPT0053	2		★
A	M3	Detecting Piece	QBJT0057	1		RQ-224S, 228S, 236S
B	M4	Head Holding Screw	XS2N-3FN	4		COMMON
B	M5	Head Adjust Screw	QHQT0013	1		★
C	M6	Cassette Holder	QBPT0061	1		★
B	M7	Head Adjust Spring	QBCT0022	1		RQ-228S
C	M8	Cassette Pressure Spring	QBPT0057	1		★
C	M9	Screw ⊕2.6×4	XSN26+4FN	3		COMMON
C	M10	Tapping Screw ⊕2×8	XTN2+8AFX	4		,,
A	M11	Tape Couter	QDC0057	1		★
A	M12	Counter Belt	QDBT0012	2		RQ-228S
C	M13	Screw ⊕3×6	XSN3+6FN	2		COMMON
C	M14	Lock Washer	QHQT0003	2		RQ-228S
C	M15	Flywheel Retainer	QMQT0005	1		RQ-224S, 228S, 236S
C	M16	Flywheel Supporter	QMMT0010	1		RQ-224S
C	M17	Tapping Screw ⊕2.0×8	XTN26+8AFX	10		COMMON
×	M18	Under Chassis Unit	QXKT0014	1		★
C	M19	Lock Washer	XWC26BFQ	3		COMMON
C	M20	Counter Connection Pulley	QXPT0049	1		★
C	M21	Screw ⊕2.6×3	XSN26+3FN	5		COMMON
C	M22	Steel Washer	QWPT0011	2		RQ-224S, 228S, 435S
C	M23	Auto Stop Lever Spacer	QMPT0043	1		★
C	M24	Auto Stop Lever	QMLT0097	1		RQ-228S
C	M25	Auto Stop Lever Spring	QBTT0039	1		,,
C	M26	Lever Lock (2) Unit	QXLT0052	1		★
C	M27	Stop Ring E2.3φ	XUC23FT	3		COMMON
C	M28	Steel Washer	XWG3	1		,,

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
C	M29	Rewind Lever Assembly	QXLT0030	1			RQ-228S
C	M30	Rewind Detecting Lever Spring	QBNT0008	1			"
C	M31	Push Angle Upper Unit	QXET0006	1			★
C	M32	Lever Lock (1) Spring	QBTT0025	1			RQ-224S, 228S, 236S
C	M33	Push Reinforcement Angle	QMAT0026	1			★
C	M34	Push Angle (Lower)	QMAT0025	2			★
C	M35	Record Lock Lever	QMLT0122	1			★
C	M36	Stop Ring E3ϕ	XUC3FT	1			COMMON
C	M37	Record Spring Plate	QBPT0047	1			RQ-228S
C	M38	Screw ⊕2×3	XSN2+3FN	1			COMMON
C	M39	Push Lever (1) (2) Spring	QBTT0036	2			RQ-228S
C	M40	Push Lever (6) Spring	QBTT0026	1			RQ-224S, 228S, 236S
C	M41	Push Angle Middle Unit	QXET0005	1			★
C	M42	Rewind Pulley Assembly	QXPT0042	1			RQ-228S
A	M43	Flywheel Assembly	QXFT0005	1			"
A	M44	Flywheel Belt	QDBT0011	1			"
C	M45	Idler Lever Spring	QBTT035	2			"
C	M46	Ejection Metal	QMQT0020	1			★
C	M47	Tetoron Washer	QWQT0005	3			RQ-224S, 226S
C	M48	Takeup Pulley Lever Assembly	QXLT0044	1			★
C	M49	Takeup Pulley Lever Spring	QBT1072	2			RQ-224S, 228S, 436S
C	M50	Motor Holding Screw	QHQT0011	2			RQ-228S
B	M51	Motor Pulley	QDPT0046	1			★
B	M52	Motor Pulley Holding Screw	QHQT0018	1			RQ-228S
C	M53	Motor Cushion Rubber	QBGT0048	2			"
C	M54	Stop Ring E6ϕ	XUB6B	1			"
B	M55	Pressure Roller Lever Spring	QBNT0009	1			"
B	M56	Pressure Roller Lever Assembly	QXLT0053	1			RQ-228S
A	M57	Motor	QDM0611A	1			★

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)	Remarks
C	M58	Idler Spacer	QMPT0029	2		RQ-228S
B	M59	Takeup Brake Assembly	QUVT0002	1		"
B	M60	Takeup Brake Spring	QBTT0042	1		"
B	M61	Slide Pulley	QDPT0038	1		RS-228S
C	M62	Stop Ring E1.5ϕ	XUC15FT	1		COMMON
A	M63	Idler Pulley Assembly	QXPT0039	1		RQ-228S
C	M64	Idler Lever Unit	QXLT0049	1		★
C	M66	Quick Brake Lever Spring	QBPT0065	1		RQ-228S
B	M67	Quick Brake Lever Assembly	QXLT0036	1		RQ-228S
C	M68	Push Angle (Lower)	QMAT0019	1		"
C	M69	Reel Table Spring	QBCT0025	1		★
C	M70	Rewind Pulley Assembly	QXPT0037	1		RQ-228S
C	M71	Tapping Screw ⊕2.6×5	XTN26 : 5BFX	2		COMMON
C	M72	Slide Plate Pressure Spring	QBPT0049	1		RQ-228S
C	M73	Head Spacer Holding Screw	QHQT0009	1		"
C	M74	Auto Stop Detecting Arm	QMQT0102	1		"
C	M75	Washer	QWPT0013	1		"
C	M76	Slide Plate Spring	QBTT0038	1		"
C	M77	Head Slide Plate Unit	QXHT0006	1		★
C	M78	Detecting Piece Pressure Plate	QMFT0024	1		RQ-228S
B	M79	Steel Ball 2.4ϕ	QDK1002	2		COMMON
C	M80	Erase Safety Lever	QMLT0107	1		RQ-228S
C	M81	Idler Moving Spring Plate	QBPT0052	1		"
C	M82	Push Lever (1)	QMLT0114	1		★
C	M83	Push Lever (2)	QMLT0115	1		★
C	M84	Push Lever (3)	QMLT0116	1		★
C	M85 M86	Push Lever (4) Unit	QXLT0046	1		★
C		Push Lever (5) Unit	QXLT0047	1		★
C	M87	Push Lever (6)	QMLT0119	1		★

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)	Remarks
B	M88	Push Button (A) Unit	QYTT0044A	5		★
B	M89	Push Button (B) Unit	QYTT0044B	1		★
C	M90	Lever Lock (1) Unit	QXLT0045	1		★
		RESISTORS				
B	R1, 29, 34, 36,	37, 39, 49, 100				
		Carbon Resistor 10KΩ 1/4W	ERD14VJ103	8		
B	R2, 50	" 150Ω 1/4W	ERD14VJ151	2		
B	R3	" 1.2KΩ 1/4W	ERD14VJ122	1		
B	R4, 56	" 68KΩ 1/4W	ERD14VJ683	2		
B	R5, 47, 63	" 6.8KΩ 1/4W	ERD14VJ682	3		
B	R6	Carbon Resistor 12KΩ 1/4W	ERD14VJ123	1		
B	R7, 28, 35, 38, 40, 44, 59	" 2.7KΩ 1/4W	ERD14VJ272	7		
B	R8, 21, 43, 69, 104, 105	" 100KΩ 1/4W	ERD14VJ104	6		
B	R9, 32, 107	" 4.7KΩ 1/4W	ERD14VJ472	3		
B	R10, 22	" 150KΩ 1/4W	ERD14VJ154	2		
B	R11, 15, 101	Carbon Resistor 2.2KΩ 1/4W	ERD14VJ222	3		
B	R12	" 680Ω 1/4W	ERD14VJ681	1		
B	R13, 54, 126	" 100Ω 1/4W	ERD14VJ101	3		
B	R14,20,46,53,106,109,111,113,114,116,123,125, 134,135					
		" 220Ω 1/4W	ERD14VJ221	14		
B	R16, 18, 42	" 5KΩ 1/4W	ERD14VJ502	3		
B	R17	Carbon Resistor 33KΩ 1/4W	ERD14VJ333	1		
B	R19, 58, 60, 110, 130, 131					
		" 1KΩ 1/4W	ERD14VJ102	6		
B	R23, 26	" 270KΩ 1/4W	ERD14VJ274	2		
B	R24, 66	" 1.5KΩ 1/4W	ERD14VJ152	2		
B	R25, 31, 103, 120, 137	" 3.3KΩ 1/4W	ERD14VJ332	5		
B	R27	Carbon Resistor 39Ω 1/4W	ERD14VJ390	1		
B	R30, 122, 138	" 47KΩ 1/4W	ERD14VJ473	3		
B	R33	" 27KΩ 1/4W	ERD14VJ273	1		

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)	Remarks
B	R41	Carbon Resistor 5.6KΩ 1/4W	ERD14VJ562	1		
B	R45, 51	" 33Ω 1/4W	ERD14VJ330	2		
B	R48, 57, 118, 119	Carbon Resistor 22KΩ 1/4W	ERD14VJ223	4		
B	R52, 115, 136	" 330Ω 1/4W	ERD14VJ331	3		
B	R55, 129	" 1.2KΩ 1/4W	ERD14TJ122	2		
B	R61	" 4.7Ω 1/4W	ERD14VJ4R7	1		
B	R62	" 15Ω 1/4W	ERD14VJ150	1		
B	R64	Carbon Resistor 18KΩ 1/4W	ERD14VJ183	1		
B	R68	" 17KΩ 1/4W	ERD14TJ173	1		
B	R70	Wire-wound Resistor 1Ω 1/2W	ERW12L1R0	1		
B	R102	Carbon Resistor 1.5KΩ 1/4W	ERD14TJ152	1		
B	R108	" 1KΩ 1/4W	ERD14TJ102	1		
B	R112	Carbon Resistor 560Ω 1/4W	ERD14VJ561	1		
B	R117	" 3.9KΩ 1/4W	ERD14VJ392	1		
B	R121	" 15KΩ 1/4W	ERD14VJ153	1		
B	R124	" 270Ω 1/4W	ERD14TJ271	1		
B	R127	" 56Ω 1/4W	ERD14VJ560	1		
B	R128	Carbon Resistor 1.8KΩ 1/4W	ERD14VJ182	1		
B	R132	" 220KΩ 1/4W	ERD14VJ224	1		
B	R140	" 82KΩ 1/4W	ERD14VJ823	1		
		VARIABLE RESISTORS				
A	VR1, 3	Variable Resistor 10KΩ (A)	EVAQ0AA05A14	2		★
A	VR2	" 10KΩ (A)	EVHB0BK15A14	1		★
A	VR4	Semi-fixed Variable Resistor 500Ω (B)	EVLT0AA00B52	1		
A	VR5	Semi-fixed Variable Resistor 50KΩ (B)	EVLT0AA00B54	1		RS-241S, 253S, 267S
		CAPACITORS				
B	C1, 44	Electrolytic Capacitor 2200μF	ECEA10V2200	2		
B	C2	" 1μF	ECEA50V1	1		
C	C3	Styrol Capacitor 500pF	ECQM1501M	1		

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
B	C4, 8	Electrolytic Capacitor 47μF	ECEA10V47	2			
C	C5, 41	Mylar Capacitor 0.047μF	ECQM05473M	2			
C	C6	Mylar Capacitor 0.033μF	ECQM05183M	1			
B	C7, 14, 15, 18,	23, 24, 25, 26, 27, 30, 38, 39, 51, 53					
		Electrolytic Capacitor 10μF	ECEA16V10	14			
B	C9	" 0.47μF	ECEA50V0R47	1			
B	C10, 17, 52	" 4.7μF	ECEA50V4R7	3			
B	C11, 16, 19, 32	" 100μF	ECEA10V100	4			
B	C12, 22, 28, 37	Electrolytic Capacitor 220μF	ECEA10V220	4			
C	C13, 29	Mylar Capacitor 0.1μF	ECQM05104M	2			
C	C20	" 0.001μF	ECQM05102M	1			
C	C21, 34, 35	" 0.0039μF	ECQM05392M	3			
B	C33, 49, 54	Electrolytic Capacitor 470μF	ECEA12V470	3			
C	C40	Mylar Capacitor 0.01μF	ECQM05103M	1			
C	C42	Styrol Capacitor 560 pF	ECQS1561M	1			
B	C43, 50	Electrolytic Capacitor 470μF	ECEA10V470	2			
C	C45, 48	Mylar Capacitor 0.018μF	ECQM05183M	2			
C	C56	Ceramic Capacitor 330 pF	ECKD1H331KB	1			
C	C100	Ceramic Capacitor 10 pF	ECCD1H100K	1			
C	C101, 103	" 33 pF	ECCD1H330K	1			
C	C102, 110, 131	" 4 pF	ECCD1H040C	2			
C	C104	" 0.001μF	ECKD2H102PU	3			
C	C105,114,119,	122,135,139,140,145,157,160,161					
		" 0.01μF	ECKD1H103P	11			
C	C106, 116	Ceramic Capacitor 15 pF	ECCD1H150KC	1			
B	C107,108, 117,	118, 120, 121, 124, 125					
		Variable Capacitor	RCVC22124L	1			
C	C111	Ceramic Capacitor 18 pF	ECCD1H180KC	1			
C	C112	" 10 pF	ECCD1H100KC	1			
C	C113,146, 147	" 330 pF	ECKD1H331KB	3			

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
C	C115	Ceramic Capacitor 7 pF	ECCD1H070KC	1			
C	C123, 150	" 0.01μF	ECKD1H103MD	2			
C	C126	" 7 pF	ECCD1H070C	1			
C	C128	Styrol Capacitor 1500 pF	ECQS05152J	1			
C	C129, 133, 138, 154	Ceramic Capacitor 0.022μF	ECKD1H223P	4			
C	C130, 141	Ceramic Capacitor 1 pF	ECCD1H010C	2			
B	C132	Electrolytic Capacitor 10μF	ECEA16V10	1			
C	C134	Ceramic Capacitor 3 pF	ECCD1H030C	1			
B	C136, 152	Electrolytic Capacitor 1μF	ECEA50V1	2			
B	C137	" 100μF	ECEA6.3V100	1			
C	C142	Ceramic Capacitor 47 pF	ECCD1H470KT	1			
B	C143	Electrolytic Capacitor 470μF	ECEA10V470	1			
B	C144	" 470μF	ECEA12V470	1			
B	C149	" 4.7μF	ECEA25V4R7	1			
C	C151, 153, 155, 156, 158	Ceramic Capacitor 0.033μF	ECKD1H333P	5			
		COMBINATION PARTS					
B	CR1	Combination Part	EXAF203Z471C	1			RQ-435S, 435FLSE
B	CR2	"	EXA5D104CC	1			RQ-435FLSE
		TRANSISTORS					
A	Tr1	Transistor	2SA640(M, L) or 2SA494(Y) or 2SA666(Q, R)	1			★ ★ RS-262US
A	Tr2, 8, 9, 11, 14	"	2SB175(B)	5			COMMON
A	Tr3, 4, 5, 10	"	2SA666(P,Q,R,S) or 2SA641(M, L) or 2SA564(P, Q, R, S)	4			RS-262US ★ RS-256US,275US, 735US,768US
A	Tr6, 7	"	2SA666(Q, R) or 2SA564(Q,R)	2			RS-262US RS-256US,275US
A	Tr12, 13	"	2SB324(B, C, D)	2			COMMON
A	Tr15	Transistor	2SB324(G)	1			COMMON
A	Tr16	"	2SA666(Q) or 2SA564(Q)	1			RS-262US RS-256US,275US
A	Tr100, 101	"	2SC1047(C)	2			★
A	Tr102	"	2SC1359(B)	1			★

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)	Remarks
A	Tr103, 104, 105, 106	Transistor	2SC1359(A)	4		★
		DIODES				
A	D1, 2, 3, 8, 101, 102, 103, 107					
		Diode	OA90	8		COMMON
A	D4	Diode (Varister)	MA26	1		RQ-232S, 234S, 236S, 504S
A	D5	Diode	MA25	1		★
A	D6, 7	Silicon Diode	FR2	2		RQ-224S, 226S, 434S
A	D100	Silicon Varactor	SC15	1		RS-253S, 259S, 267S, 280S
A	D104	Silicon Diode	MA26W	1		★
A	D105, 106	Diode	2OA90	2		COMMON
		TRANSFORMERS				
A	T1	Record Output Transformer	QLA0113	1		RQ-102S, 152S, 232S, 501S
A	T2	Input Transformer	QLAT0104	1		★
A	T3	Output Transformer	QLAT0308	1		★
A	T4	Power Transformer	QLPT0319	1		★
A	T100	IFT 100 (FM)	RLI4B152	1		RQ-434S RS-267S, 280S
A	T101, 104, 106	1st, 2nd, 3rd IFT (FM)	RLI4B351	3		RQ-237S, 434S, 435DS
A	T102	1st IFT (AM)	QLIT0103	1		★
A	T103, 105	2nd, 3rd IFT (AM)	RLI2B157M	2		★
A	T107	4th IFT (AM)	RLI2B457M	1		RQ-434S RS-267S
A	T108	4th IFT (FM)	RLI4B551	1		"
A	T109	5th IFT (FM)	RLI4B552	1		RQ-434S RS-267S
		COILS				
B	L1	Choke Coil	QLRT0003	1		RQ-228S, 236S
A	L2	Oscillation Coil	QLBT0111	1		★
B	L3, 4, 109	Noise Prevention Coil (A)	QLP0114	3		COMMON
B	L100, 104	Choke Coil	ELQ5A9	2		RQ-238S, 434S, 435S
B	L101, 102	Choke Coil	ELQ5A30	2		RQ-238S, 434S, 435S

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)	Remarks
B	L103	FM Collector Coil	ELQ5N11	1		RQ-232S, 434S, 435S
B	L105	FM Local Oscillator Coil	ELL364	1		★
B	L106	Antenna Coil	ELR12B0157	1		★
B	L107	AM Local Oscillator Coil	QLBT0313	1		★
B	L108	Trap Coil	QLRT0005	1		★
		SWITCHES				
A	S1	Slide Switch (Record/Playback)	QSST0020	1		RQ-226S
A	S2	Slide Switch (Radio Tape)	QSST0045	1		★
A	S3	Leaf Switch (Amp Power)	QSBT0010	1		★
A	S4	Leaf Switch (Motor Power)	QSBT0008	1		RQ-228S
	S5	Mixing Switch	(Ref. to VR2)	(1)		
	S6	AC/DC Select Switch	(Interlocked with AC Socket Ref. to E3)			
A	S7	Dial Light Switch	QSBT0011	1		★
A	S8	Rotary Switch (AC Voltage Selector)	QSR0004B	1		COMMON
A	S100	Slide Switch (Band Selector)	QSST0046	1		★
		ELECTRICAL PARTS				
A	E1	Record/Playback Head	QWYT0103	1		RQ-434DS
A	E2	Erase Head	QWYT2105	1		RQ-236S
B	E3	AC Socket	QJS0316H	1		RQ-209MS, 228S
B	E4	M3 Jack	QJAT0103	2		RQ-204S, 223S, 224S, 435DS
B	E5	M3 Jack with SW	QJAT0110	2		RQ-434DS
B	E6	M2 Jack	QJAT0102	1		RQ-204S, 223S, 224S, 435DS
A	E7	Speaker	EAS12P70SF	1		★
C	E8	Jack Board	QJQT0033	1		★
B	E9	Tuning Shaft Assembly	QEQT0001K	1		★ K
C	E10	Indicator Assembly	QYDT0005	1		★
B	E11	DC IN Jack	QJAT0105	1		RQ-204S,224S, 434DS,435DS
A	E12	VU Meter	QSL1020	1		★
A	E13	Neon Lamp	XAMST02T	1		★
C	E14	Dial Dram	QDQT0014	1		★

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)	Remarks
C	E15	Dial Dram Spring	QBTT0017	1		RQ-232S
C	E16	Dial Scale	QGST2192	1		★
C	E17	Radio Shield Plate	QTST0012	1		★
C	E18	Shield Case	QTTT0181	1		★
A	E19	Condenser Microphone	EM35ATD	1		★
		CABINET PARTS				
B	G1	Main Case Assembly (Without Speaker)	QYBT0117W	1		★
A	G1-1	Cassette Lid	QKFT0039	1		★
C	G1-2	Cassette Lid Holding Metal (A)	QKTT0109	1		★
C	G1-3	Cassette Lid Spring	QBNT0018	1		★
C	G1-4	Cassette Lid Holding Metal (B)	QKTT0110	1		★
C	G1-5	Tapping Screw ⊕3×6	XTM3+6A	3		COMMON
C	G1-6	Handle Assembly	QYHT0011	1		★
C	G1-7	Handle Holding Screw	QHQT0014	2		★
C	G1-8	Handle Washer	QBTT0057	1		★
C	G1-9	Handle Spacer	QKQT0030	2		★
C	G1-10	Handle Holding Metal	QKTT0114	2		★
C	G1-11	Speaker Holding Metal	QKT1154	1		RQ-203S
C	G1-12	Speaker Pressure Angle	QKTT0115	1		★
C	G1-13	Tapping Screw ⊕3×10	XTM3+10A	3		COMMON
B	G2	Bottom Case Assembly	QYCT0073	1		★
C	G2-1	Battery Terminal ⊖A	QJBT0011	1		RQ-236S, 435S
C	G2-2	Battery Terminal ⊖B	QJBT0012	1		RQ-206S
C	G2-3	Battery Terminal ⊕A	QJBT0029	1		RQ-435S
C	G2-4	Battery Terminal ⊕B	QJBT0025	1		RQ-224S, 226S, 435S
C	G2-5	Battery Spring	QJB0025	2		"
C	G2-6	Rod Antenna	XEAQCR218FAS	1		★ ISO
C	G2-7	Rod Antenna Holding Metal	QKTT0113	1		★
C	G2-8	Rod Antenna Holder	QKQT0031	1		★

Rank	Ref. No.	Description	Part No.	Pcs/ Set	Price (Per Pce.)		Remarks
C	G2-9	Screw ⊕3×6	XSN3+6FNS	2			COMMON (ISO)
C	G2-10	Tapping Screw ⊕3×8	XTM3+8A	1			"
C	G2-11	Washer	XWC3BFC	2			COMMON
A	G3	Battery Cover Assembly	QYFT0063	1			★
C	G4	MIC Supporter	QBGT0039	1			★
A	G5	Tuning Knob	QYTT0041K	1			★ (K)
A	G6	Slide Volume Knob	QYTT0042	2			★
A	G7	Rotary Volume Knob	QYTT0043	1			★
A	G8	Dial Light Button	QGOT0028	1			★
C	G9	Screw ⊕3×6	XSN3+6FXKS	5			COMMON (ISO)
C	G10	Dial Lamp Holding Spring	QBPT0062	1			★
		ACCESSORIES					
A	A1	Cassette Tape (Demonstration)	QFTISCCNARZ	1			COMMON
A	A2	Earphone	EAE2SB1	1			"
A	A3	Microphone	WM2241N	1			"
A	A4	Microphone Stand	WN133N	1			"
B	A5	Erase Plug	QJP0959	1			"
B	A6	AC Plug Adaptor	QJP0603S	1			COMMON (ISO)
B	A7	Instruction Book	QQT0394	1			★
		PACKINGS					
C	P1	Inside Carton	QPNT0164	1			★
C	P2	Inner Packing-R	QPNT0158	1			★
C	P3	Inner Packing-L	QPNT0157	1			★
C	P4	Dust Cover	QFDT0011	1			RQ-236S
C	P5	Accessory Box	QPWT0030	1			★

RECOMMENDED STOCK OF REPLACEMENT PARTS

Rank of Part	Estimated Selling Q'ty of Tape Recorder Set					
	Less than 50	100	300	500	1,000	2,000
A rank Parts	2	5	15	20	40	80
B rank Parts	1	2	5	10	20	40
C rank Parts	0	1	3	5	10	20